WHAT IS CLAIMED IS:

1. A purified DNA molecule encoding a human uncoupling protein 3 which comprises the nucleotide sequence

TCGAACTCAC TCACCTCCCC TCTCACCTCA CTGCCCTCAC CAGCCAGCCT
CTTGTCAAGT GATCAGGCTG TCAACCAACT TCTCTAGGAT AAGGTTTCAG
GTCAGCCTGT GTGTATAAGA CCAGTGCCAA GCCAGAAGCA GCAGAGACAA
CAGTGAATGA CAAGGAGGGG CCATCCAATC CCTGCTGCCA CCTCCTGGGA
TGGAGCCCTA GGGAGCCCCT GTGCTGCCCC TGCCGTGGCA GGACTCACAG
CCCCACCGCT GCACTGAAGC CCAGGGCTGT GGAGCAGCTC TCTCCTTGGA
CTCCTCTCGG CCCTAAAGGG ACTGGGCAGA GCCTTCCAGG ACTATGGTTG
GACTGAAGCC TTCAGACGTG CCTCCCACCA TGGCTGTGAA GTTCCTGGGG
GCAGGCACAG CAGCCTGTTT TGCTGACCTC GTTACCTTTC CACTGGACAC
AGCCAAGGTC CGCCTGCAGA TCCAGGGGGA GAACCAGGCG GTCCAGACGG
CCCGGCTCGT GCAGTACCGT GGCGTGCTGG GCACCATCCT GACCATGGTG
CGGACTGAGG GTCCCTGCAG CCCCTACAAT GGGCTGGTGG CCGGCCTGCA
GCGCCAGATG AGCTTCGCCT CCATCCGCAT CGGCCTTTAC GACTCCGTCA
AGCAGGTGTA CACCCCCAAA GGCGCGGACA ACTCCAGCCT CACTACCCGG
ATTTTGGCCG GCTGCACCAC AGGAGCCATG GCGGTGACCT GTGCCCAGCC
CACAGATGTG GTGAAGGTCC GATTTCAGGC CAGCATACAC CTCGGGCCAT
CCAGGAGCGA CAGAAAATAC AGCGGGACTA TGGACGCCTA CAGAACCATC
GCCAGGGAGG AAGGAGTCAG GGGCCTGTGG AAAGGAACTT TGCCCAACAT
CATGAGGAAT GCTATCGTCA ACTGTGCTGA GGTGGTGACC TACGACATCC
TCAAGGAGAA GCTGCTGGAC TATCACCTGC TCACTGACAA CTTCCCCTGC
CACTTTGTCT CTGCCTTTGG AGCCGGCTTC TGTGCCACAG TGGTGGCCTC
CCCGGTGGAC GTGGTGAAGA CCCGGTATAT GAACTCACCT CCAGGCCAGT
ACTTCAGCCC CCTCGACTGT ATGATAAAGA TGGTGGCCCA GGAGGGCCCC
ACAGCCTTCT ACAAGGGATT TACACCCTCC TTTTTGCGTT TGGGATCCTG
GAACGTGGTG ATGTTCGTAA CCTATGAGCA GCTGAAACGG GCCCTGATGA
AAGTCCAGAT GTTACGGGAA TCACCGTTTT GAACAAGACA AGAAGGCCAC
TGGTAGCTAA CGTGTCCGAA ACCAGTTAAG AATGGAAGAA AACGGTGCAT
CCACGCACAC ATGGACACAG ACCCACACAT GTTTACAGAA CTGTTGTTTA
CTTGTTGCTG ATTCAAGAAA CAGAAGTAGA AGAGAGAGGA TTCTGGTCTT
CACTGCCATG CCTCAAGAAC ACCTTTGTTT TGCACTGACA AGATGGAAAA
TAAATTATAT TAATTTTTGA AACCCATTAG GCATGCCTAA TATTTAGGCA

AGAGAAAATA AACCAAGATA GATCCATTTG GACAAAATGG AAGGTTGGAG
ACGTGTATCC CCGTGAAATC TGGTCAGATA ATGAATGATA AGCAGGAAGG
ATGGCAAGCA CGGGACAGGA GGGGCCCACA ATGGAGTGGG AGATCAGCCA
CGGAGCCTGG AGGGACGCCA CCCAGCAACA CAGAGCTGGC GACTGCAGCT
GCACCATCAC ACATGCATCA TCAGCCTATT TGTAATATGT CTGCCACAGA
GAGTCCTTTG GGATTCTAGG AAACCCAAGG AACAAGAGAA AAAACTAGAG
CCTGTGCTAA AGAAGCCTGC TGGGCCCATG TGAGGCTGGG GTCGTAAATA
TTCCCCGACG ACACTGAAGA ATCAAGAGGG CAGCCCCCAC TTCTCCTACA
AAATGGAGGG AGCCATCCCT TCCCTGTCCA CCTCACCAGG GGTGCTATGA
CATGCAAGTG AGAAGCTGGG CATGAACGCA CTTTATAAAA GCAAAAGCTC
TGTGTAAATC TAACTACAAG GACAATGCCT TGGGAGAGAT TTTGTCGGGA
CAGAGAGGAG TTGCCAGGGA AGAAGGTTTG AAAGATACGG TTGTCTAGAG
GTGAGACCAA AGGATCCAGA GACTTGGGGA CCAGAGGTGA CAGTGGATGA
CGTGAAGCCA CAGGAGCCCC ACCCCCATGC AGCTTTTTCC CCACCCCCCC
CACCACGCGC TCAATCATGA GTACCTCAAA GGATTGTTGG GCTTGGGGGA
AAAGAGGTGG ATTCCTGGGC AAGAACCTAA AGTAGCAGGA,

disclosed as SEQ ID NO:11.

2. A DNA molecule of claim 1 which comprises from about nucleotide 344 to about nucleotide 1282 of SEQ ID NO:11.

3. A purified DNA molecule encoding human uncoupling protein 3 wherein said DNA molecule encodes a protein comprising the amino acid sequence

MVGLKPSDVPPTMAVKFLGAGTAACFADLVTFPLDTAKVRLQIQGENQAVQTARLVQYR
GVLGTILTMVRTEGPCSPYNGLVAGLQRQMSFASIRIGLYDSVKQVYTPKGADNSSLTT
RILAGCTTGAMAVTCAQPTDVVKVRFQASIHLGPSRSDRKYSGTMDAYRTIAREEGVRG
LWKGTLPNIMRNAIVNCAEVVTYDILKEKLLDYHLLTDNFPCHFVSAFGAGFCATVVAS
PVDVVKTRYMNSPPGQYFSPLDCMIKMVAQEGPTAFYKGFTPSFLRLGSWNVVMFVTYE
QLKRALMKVQMLRESPF, as set forth in three-letter abbreviation in SEQ ID NO:12.

4. An expression vector for the expression of a human uncoupling 3 protein in a recombinant host cell wherein said expression vector comprises the DNA molecule of claim 1.

5. An expression vector of claim 4 which is a eukaryotic expression vector.

6. An expression vector of claim 4 which is a prokaryotic expression vector.

7. A host cell which expresses a recombinant human uncoupling 3 protein wherein said host cell contains the expression vector of claim 4.

8. A host cell which expresses a recombinant human uncoupling 3 protein wherein said host cell contains the expression vector of claim 5.

9. A host cell which expresses a recombinant human uncoupling protein 3 wherein said host cell contains the expression vector of claim 6.

10. A host cell of claim 7 wherein said human uncoupling protein 3 is overexpressed from said expression vector.

11. A host cell of claim 8 wherein said human uncoupling protein 3 is overexpressed from said expression vector.

12. A host cell of claim 9 wherein said human uncoupling protein 3 is overexpressed from said expression vector.

13. A subcellular membrane fraction obtained from the host cell of claim 10 which contains recombinant human uncoupling protein 3.

14. A subcellular membrane fraction obtained from the host cell of claim 11 which contains recombinant human uncoupling protein 3 .

(a) transfecting the expression vector of claim 4 into a suitable host cell; and,

(b) culturing the host cells of step (a) under conditions which allow expression of the human uncoupling protein from the expression vector.

19. An expression vector for the expression of a human uncoupling protein 3 in a recombinant host cell wherein said expression vector comprises the DNA molecule of claim 18.

20. A purified DNA molecule encoding a mouse uncoupling protein which comprises the nucleotide sequence

CCAGGAACAG CAGAGACAAC AGTGAATGGT GAGGCCCGGC CGTCAGATCC
TGCTGCTACC TAATGGAGTG GATCCTTAGG GTGGCCCTGC ACTACCCAAC
CTTGGCTAGA CGCACAGCTT CCTCCCTGAA CTGAAGCAAA AGATTGCCAG
GCAAGCTCTC TCCTCGGACC TCCATAGGCA GCAAAGGAAC CAGGCCCATT
CCCCGGGACC ATGGTTGGAC TTCAGCCCTC CGAAGTGCCT CCCACAACGG
TTGTGAAGTT CCTGGGGGCC GGCACTGCGG CCTGTTTTGC GGACCTCCTC
ACTTTTCCCC TGGACACCGC CAAGGTCCGT CTGCAGATCC AAGGGGAGAA
CCCAGGGGCT CAGAGCGTGC AGTACCGCGG TGTGCTGGGT ACCATCCTGA
CTATGGTGCG CACAGAGGGT CCCCGCAGCC CCTACAGCGG ACTGGTCGCT
GGCCTGCACC GCCAGATGAG TTTTGCCTCC ATTCGAATTG GCCTCTACGA
CTCTGTCAAG CAGTTCTACA CCCCCAAGGG AGCGGACCAC TCCAGCGTCG
CCATCAGGAT TCTGGCAGGC TGCACGACAG GAGCCATGGC AGTGACCTGC
GCCCAGCCCA CGGATGTGGT GAAGGTCCGA TTTCAAGCCA TGATACGCCT
GGGAACTGGA GGAGAGAGGA AATACAGAGG GACTATGGAT GCCTACAGAA
CCATCGCCAG GGAGGAAGGA GTCAGGGGCC TGTGGAAAGG GACTTGGCCC
AACATCACAA GAAATGCCAT TGTCAACTGT GCTGAGATGG TGACCTACGA
CATCATCAAG GAGAAGTTGC TGGAGTCTCA CCTGTTTACT GACAACTTCC
CCTGTCACTT TGTCTCTGCC TTTGGAGCTG GCTTCTGTGC CACAGTGGTG
GCCTCCCCGG TGGATGTGGT AAAGACCCGA TACATGAACG CTCCCCTAGG
CAGGTACCGC AGCCCTCTGC ACTGTATGCT GAAGATGGTG GCTCAGGAGG
GACCCACGGC CTTCTACAAA GGATTTGTGC CCTCCTTTCT GCGTCTGGGA
GCTTGGAACG TGATGATGTT TGTAACATAT GAGCAACTGA AGAGGGCCTT

15. A subcellular membrane fraction obtained from the host cell of claim 12 which contains recombinant human uncoupling protein 3.

16. A purified DNA molecule which consists of the nucleotide sequence

TCGAACTCAC TCACCTCCCC TCTCACCTCA CTGCCCTCAC CAGCCAGCCT
CTTGTCAAGT GATCAGGCTG TCAACCAACT TCTCTAGGAT AAGGTTTCAG
GTCAGCCTGT GTGTATAAGA CCAGTGCCAA GCCAGAAGCA GCAGAGACAA
CAGTGAATGA CAAGGAGGGG CCATCCAATC CCTGCTGCCA CCTCCTGGGA
TGGAGCCCTA GGGAGCCCCT GTGCTGCCCC TGCCGTGGCA GGACTCACAG
CCCCACCGCT GCACTGAAGC CCAGGGCTGT GGAGCAGCTC TCTCCTTGGA
CTCCTCTCGG CCCTAAAGGG ACTGGGCAGA GCCTTCCAGG ACTATGGTTG
GACTGAAGCC TTCAGACGTG CCTCCCACCA TGGCTGTGAA GTTCCTGGGG
GCAGGCACAG CAGCCTGTTT TGCTGACCTC GTTACCTTTC CACTGGACAC
AGCCAAGGTC CGCCTGCAGA TCCAGGGGGA GAACCAGGCG GTCCAGACGG
CCCGGCTCGT GCAGTACCGT GGCGTGCTGG GCACCATCCT GACCATGGTG
CGGACTGAGG GTCCCTGCAG CCCCTACAAT GGGCTGGTGG CCGGCCTGCA
GCGCCAGATG AGCTTCGCCT CCATCCGCAT CGGCCTTTAC GACTCCGTCA
AGCAGGTGTA CACCCCCAAA GGCGCGGACA ACTCCAGCCT CACTACCCGG
ATTTTGGCCG GCTGCACCAC AGGAGCCATG GCGGTGACCT GTGCCCAGCC
CACAGATGTG GTGAAGGTCC GATTTCAGGC CAGCATACAC CTCGGGCCAT
CCAGGAGCGA CAGAAAATAC AGCGGGACTA TGGACGCCTA CAGAACCATC
GCCAGGGAGG AAGGAGTCAG GGGCCTGTGG AAAGGAACTT TGCCCAACAT
CATGAGGAAT GCTATCGTCA ACTGTGCTGA GGTGGTGACC TACGACATCC
TCAAGGAGAA GCTGCTGGAC TATCACCTGC TCACTGACAA CTTCCCCTGC
CACTTTGTCT CTGCCTTTGG AGCCGGCTTC TGTGCCACAG TGGTGGCCTC
CCCGGTGGAC GTGGTGAAGA CCCGGTATAT GAACTCACCT CCAGGCCAGT
ACTTCAGCCC CCTCGACTGT ATGATAAAGA TGGTGGCCCA GGAGGGCCCC
ACAGCCTTCT ACAAGGGATT TACACCCTCC TTTTTGCGTT TGGGATCCTG
GAACGTGGTG ATGTTCGTAA CCTATGAGCA GCTGAAACGG GCCCTGATGA
AAGTCCAGAT GTTACGGGAA TCACCGTTTT GAACAAGACA AGAAGGCCAC
TGGTAGCTAA CGTGTCCGAA ACCAGTTAAG AATGGAAGAA AACGGTGCAT
CCACGCACAC ATGGACACAG ACCCACACAT GTTTACAGAA CTGTTGTTTA
CTTGTTGCTG ATTCAAGAAA CAGAAGTAGA AGAGAGAGGA TTCTGGTCTT

CACTGCCATG CCTCAAGAAC ACCTTTGTTT TGCACTGACA AGATGGAAAA
TAAATTATAT TAATTTTTGA AACCCATTAG GCATGCCTAA TATTTAGGCA
AGAGAAAATA AACCAAGATA GATCCATTTG GACAAAATGG AAGGTTGGAG
ACGTGTATCC CCGTGAAATC TGGTCAGATA ATGAATGATA AGCAGGAAGG
ATGGCAAGCA CGGGACAGGA GGGGCCCACA ATGGAGTGGG AGATCAGCCA
CGGAGCCTGG AGGGACGCCA CCCAGCAACA CAGAGCTGGC GACTGCAGCT
GCACCATCAC ACATGCATCA TCAGCCTATT TGTAATATGT CTGCCACAGA
GAGTCCTTTG GGATTCTAGG AAACCCAAGG AACAAGAGAA AAAACTAGAG
CCTGTGCTAA AGAAGCCTGC TGGGCCCATG TGAGGCTGGG GTCGTAAATA
TTCCCCGACG ACACTGAAGA ATCAAGAGGG CAGCCCCCAC TTCTCCTACA
AAATGGAGGG AGCCATCCCT TCCCTGTCCA CCTCACCAGG GGTGCTATGA
CATGCAAGTG AGAAGCTGGG CATGAACGCA CTTTATAAAA GCAAAAGCTC
TGTGTAAATC TAACTACAAG GACAATGCCT TGGGAGAGAT TTTGTCGGGA
CAGAGAGGAG TTGCCAGGGA AGAAGGTTTG AAAGATACGG TTGTCTAGAG
GTGAGACCAA AGGATCCAGA GACTTGGGGA CCAGAGGTGA CAGTGGATGA
CGTGAAGCCA CAGGAGCCCC ACCCCCATGC AGCTTTTTCC CCACCCCCCC
CACCACGCGC TCAATCATGA GTACCTCAAA GGATTGTTGG GCTTGGGGGA
AAAGAGGTGG ATTCCTGGGC AAGAACCTAA AGTAGCAGGA,

disclosed as SEQ ID NO:11.

17. A purified DNA molecule encoding a human uncoupling protein 3 wherein said DNA molecule encodes a protein consisting of the amino acid sequence

MVGLKPSDVPPTMAVKFLGAGTAACFADLVTFPLDTAKVRLQIQGENQAVQTARLVQYR
GVLGTILTMVRTEGPCSPYNGLVAGLQRQMSFASIRIGLYDSVKQVYTPKGADNSSLTT
RILAGCTTGAMAVTCAQPTDVVKVRFQASIHLGPSRSDRKYSGTMDAYRTIAREEGVRG
LWKGTLPNIMRNAIVNCAEVVTYDILKEKLLDYHLLTDNFPCHFVSAFGAGFCATVVAS
PVDVVKTRYMNSPPGQYFSPLDCMIKMVAQEGPTAFYKGFTPSFLRLGSWNVVMFVTYE
QLKRALMKVQMLRESPF,

as set forth in three-letter abbreviation in SEQ ID NO:12.

18. A process for the expression of a human uncoupling protein 3 in a recombinant host cell, comprising:

AATGAAAGTC CAGGTACTGC GGGAATCTCC GTTTTGAACA AGGCAAGCAG
GCTGCCTGGA ACAGAACAAA GCGTCTCTGC CCTGGGGACA CAGGCCCACA
CGGTCCAGAA CCCTGCACTG CTGCTGACAC GAGAAACTGA ACTAAAAGAG
GAGAGTTTTA GTCCTCCGTG TTTCGTCCTA AAACACCTCT GTTTTGCACT
GACCTGATGG GAAATAAATT ATATTAATTT TTAAACCCTT TCCGGTTGGA
TGCCTAACAT TTAGGCAAGA GACAACAAAG AAAACCAGAG TCAACTCCCT
TGAAATGTAG GAATAAAGGA TGCATAATAA ACAGGAAAGG CACAGGTTTT
GAGAAGATCA GCCCACAGTG TTGTCCTTGA ATCAAACAAA ATGGTCGGAG
GAACCCTTCG GGTTCAGCAC AAAGAGGTGA CTACAGCCTT TTGGTCACCA
GATGACTCCG CCCCTTTGTA ATGAGTCTGC CAAGTAGACT CTATCAAGAT
TCTGGGGAAA GGAGAAAGAA CACATTGACC TGCCCGGGCG GCCGCTCGAG
CCCTATGA, disclosed as SEQ ID NO:17.

21. A DNA molecule of claim 20 which comprises from about nucleotide 211 to about nucleotide 1137 of SEQ ID NO:17.

22. A purified DNA molecule encoding mouse uncoupling protein 3 wherein said DNA molecule encodes a protein comprising the amino acid sequence, MVGLQPSEVP PTTVVKFLGA
GTAACFADLL TFPLDTAKVR LQIQGENPGA QSVQYRGVLG TILTMVRTEG
PRSPYSGLVA GLHRQMSFAS IRIGLYDSVK QFYTPKGADH SSVAIRILAG
CTTGAMAVTC AQPTDVVKVR FQAMIRLGTG GERKYRGTMD AYRTIAREEG
VRGLWKGTWP NITRNAIVNC AEMVTYDIIK EKLLESHLFT DNFPCHFVSA
FGAGFCATVV ASPVDVVKTR YMNAPLGRYR SPLHCMLKMV AQEGPTAFYK
GFVPSFLRLG AWNVMMFVTY EQLKRALMKV QVLRESPF*, as set forth in three-letter abbreviation in SEQ ID NO:18.

23. An expression vector for the expression of a mouse uncoupling protein 3 in a recombinant host cell wherein said expression vector comprises the DNA molecule of claim 20.

24. An expression vector of claim 23 which is a eukaryotic expression vector.

25. An expression vector of claim 23 which is a prokaryotic expression vector.

26. A host cell which expresses a recombinant mouse uncoupling protein 3 wherein said host cell contains the expression vector of claim 23.

27. A host cell which expresses a recombinant mouse uncoupling 3 protein wherein said host cell contains the expression vector of claim 24.

28. A host cell which expresses a recombinant mouse uncoupling protein 3 wherein said host cell contains the expression vector of claim 25.

29. A host cell of claim 26 wherein said mouse uncoupling protein 3 is overexpressed from said expression vector.

30. A host cell of claim 27 wherein said mouse uncoupling protein 3 is overexpressed from said expression vector.

31. A host cell of claim 28 wherein said mouse uncoupling protein 3 is overexpressed from said expression vector.

32. A subcellular membrane fraction obtained from the host cell of claim 29 which contains recombinant mouse uncoupling protein 3.

33. A subcellular membrane fraction obtained from the host cell of claim 30 which contains recombinant mouse uncoupling protein 3.

34. A subcellular membrane fraction obtained from the host cell of claim 31 which contains recombinant mouse uncoupling protein 3.

35. A purified DNA molecule which consists of the nucleotide sequence,

CCAGGAACAG CAGAGACAAC AGTGAATGGT GAGGCCCGGC CGTCAGATCC
TGCTGCTACC TAATGGAGTG GATCCTTAGG GTGGCCCTGC ACTACCCAAC
CTTGGCTAGA CGCACAGCTT CCTCCCTGAA CTGAAGCAAA AGATTGCCAG
GCAAGCTCTC TCCTCGGACC TCCATAGGCA GCAAAGGAAC CAGGCCCATT
CCCCGGGACC ATGGTTGGAC TTCAGCCCTC CGAAGTGCCT CCCACAACGG
TTGTGAAGTT CCTGGGGGCC GGCACTGCGG CCTGTTTTGC GGACCTCCTC
ACTTTTCCCC TGGACACCGC CAAGGTCCGT CTGCAGATCC AAGGGGAGAA
CCCAGGGGCT CAGAGCGTGC AGTACCGCGG TGTGCTGGGT ACCATCCTGA
CTATGGTGCG CACAGAGGGT CCCCGCAGCC CCTACAGCGG ACTGGTCGCT
GGCCTGCACC GCCAGATGAG TTTTGCCTCC ATTCGAATTG GCCTCTACGA
CTCTGTCAAG CAGTTCTACA CCCCCAAGGG AGCGGACCAC TCCAGCGTCG
CCATCAGGAT TCTGGCAGGC TGCACGACAG GAGCCATGGC AGTGACCTGC
GCCCAGCCCA CGGATGTGGT GAAGGTCCGA TTTCAAGCCA TGATACGCCT
GGGAACTGGA GGAGAGAGGA AATACAGAGG GACTATGGAT GCCTACAGAA
CCATCGCCAG GGAGGAAGGA GTCAGGGGCC TGTGGAAAGG GACTTGGCCC
AACATCACAA GAAATGCCAT TGTCAACTGT GCTGAGATGG TGACCTACGA
CATCATCAAG GAGAAGTTGC TGGAGTCTCA CCTGTTTACT GACAACTTCC
CCTGTCACTT TGTCTCTGCC TTTGGAGCTG GCTTCTGTGC CACAGTGGTG
GCCTCCCCGG TGGATGTGGT AAAGACCCGA TACATGAACG CTCCCCTAGG
CAGGTACCGC AGCCCTCTGC ACTGTATGCT GAAGATGGTG GCTCAGGAGG
GACCCACGGC CTTCTACAAA GGATTTGTGC CCTCCTTTCT GCGTCTGGGA
GCTTGGAACG TGATGATGTT TGTAACATAT GAGCAACTGA AGAGGGCCTT
AATGAAAGTC CAGGTACTGC GGGAATCTCC GTTTTGAACA AGGCAAGCAG
GCTGCCTGGA ACAGAACAAA GCGTCTCTGC CCTGGGGACA CAGGCCCACA
CGGTCCAGAA CCCTGCACTG CTGCTGACAC GAGAAACTGA ACTAAAAGAG
GAGAGTTTTA GTCCTCCGTG TTTCGTCGTA AAACACCTCT GTTTTGCACT
GACCTGATGG GAAATAAATT ATATTAATTT TTAAACCCTT TCCGGTTGGA
TGCCTAACAT TTAGGCAAGA GACAACAAAG AAAACCAGAG TCAACTCCCT
TGAAATGTAG GAATAAAGGA TGCATAATAA ACAGGAAAGG CACAGGTTTT
GAGAAGATCA GCCCACAGTG TTGTCCTTGA ATCAAACAAA ATGGTCGGAG

GAACCCTTCG GGTTCAGCAC AAAGAGGTGA CTACAGCCTT TTGGTCACCA
GATGACTCCG CCCCTTTGTA ATGAGTCTGC CAAGTAGACT CTATCAAGAT
TCTGGGGAAA GGAGAAAGAA CACATTGACC TGCCCGGGCG GCCGCTCGAG
CCCTATGA, disclosed as SEQ ID NO:17.

36. A purified DNA molecule encoding mouse uncoupling protein 3 wherein said DNA molecule encodes a protein consists of the amino acid sequence MVGLQPSEVP PTTVVKFLGA GTAACFADLL TFPLDTAKVR LQIQGENPGA QSVQYRGVLG TILTMVRTEG PRSPYSGLVA GLHRQMSFAS IRIGLYDSVK QFYTPKGADH SSVAIRILAG CTTGAMAVTC AQPTDVVKVR FQAMIRLGTG GERKYRGTMD AYRTIAREEG VRGLWKGTWP NITRNAIVNC AEMVTYDIIK EKLLESHLFT DNFPCHFVSA FGAGFCATVV ASPVDVVKTR YMNAPLGRYR SPLHCMLKMV AQEGPTAFYK GFVPSFLRLG AWNVMMFVTY EQLKRALMKV QVLRESPF*, as set forth in three-letter abbreviation in SEQ ID NO:18.

37. A process for the expression of a mouse uncoupling protein 3 in a recombinant host cell, comprising:

(a) transfecting the expression vector of claim 23 into a suitable host cell; and,

(b) culturing the host cells of step (a) under conditions which allow expression of the human uncoupling protein 3from the expression vector.

38. An expression vector for the expression of a mouse uncoupling protein 3 in a recombinant host cell wherein said expression vector comprises the DNA molecule of claim 35.

39. A method of identifying a modulator of uncoupling protein 3 activity, which comprises:

(a) combining a modulator of uncoupling protein 3 activity with the uncoupling protein 3 or a biologically active fragment thereof; and,

(b) measuring the effect of the modulator on the activity of ucoupling protein 3.

40. The method of claim 39 wherein said uncoupling protein 3 is human uncoupling protein 3.

41. The method of claim 40 wherein said human uncoupling protein 3 is disclosed as SEQ ID NO:12.

42. The method of claim 39 wherein said uncoupling protein 3 is mouse uncoupling protein 3.

43. The method of claim 42 wherein said mouse uncoupling protein 3 is disclosed as SEQ ID NO:18.

44. A method of extending at least one partial cDNA sequence for the purpose of characterizing and isolating a full-length cDNA molecule, which comprises:

a) constructing a cDNA library in a DNA vector primed by random, oligo-dT or a combination of both random and oligo-dT primers;

b) subdividing the cDNA library into a plurarity of cDNA pools, each of the cDNA pools containing from about 10,000 to about 20,000 cDNA molecules;

c) amplifying each cDNA pool;

d) hybridizing oligonucleotide primers complentary to the 5' and 3' portion of the partial cDNA sequence and to the 5' and 3' flanking region of the DNA vector;

e) identifying each cDNA molecule which contains a flanking DNA fragment generated by PCR in each positive cDNA pool;

f) sequencing the flanking DNA fragments; and,

g) assembling the partial cDNA sequence and the sequence from the flanking DNA fragment(s) into a complete open reading frame.